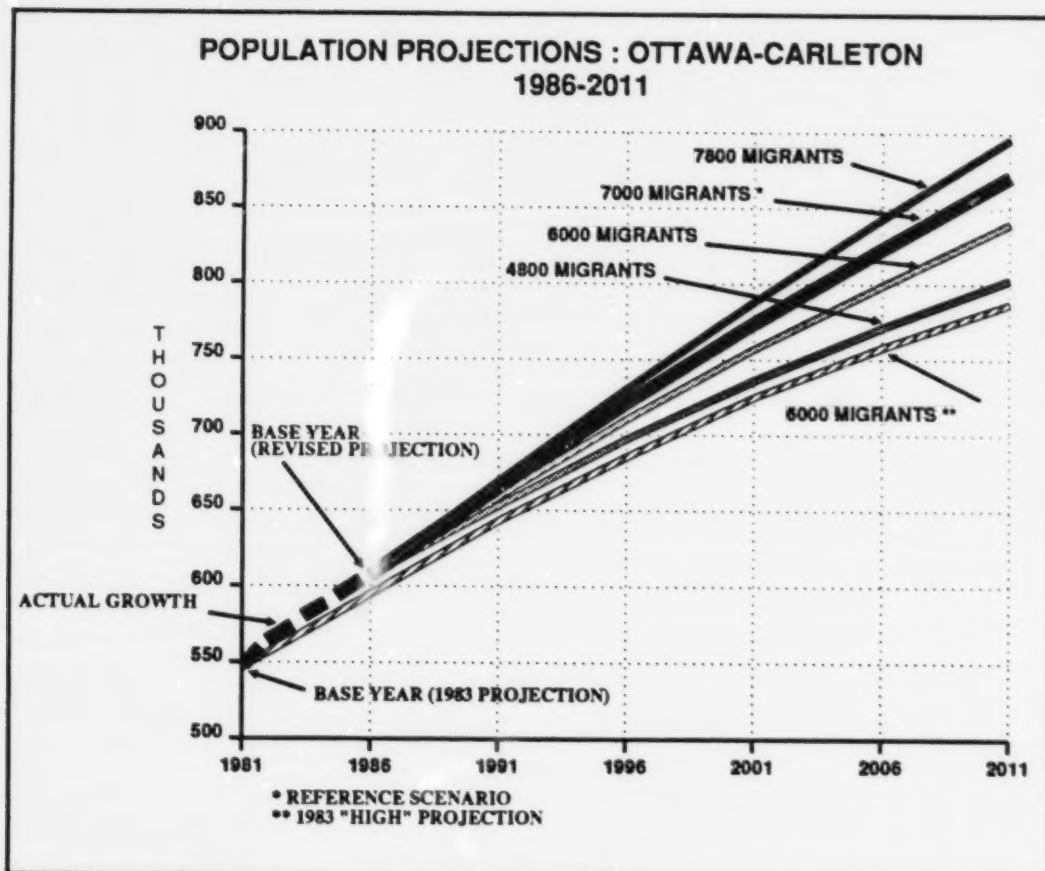


1990 UPDATE

POPULATION PROJECTIONS

OTTAWA-CARLETON

1986 - 2011



Prepared by: Policy and Program Division, Planning Department
Regional Municipality of Ottawa-Carleton
April 1990

Population Projections Ottawa-Carleton 1986 - 2011

1990 Update

EXECUTIVE SUMMARY

PURPOSE

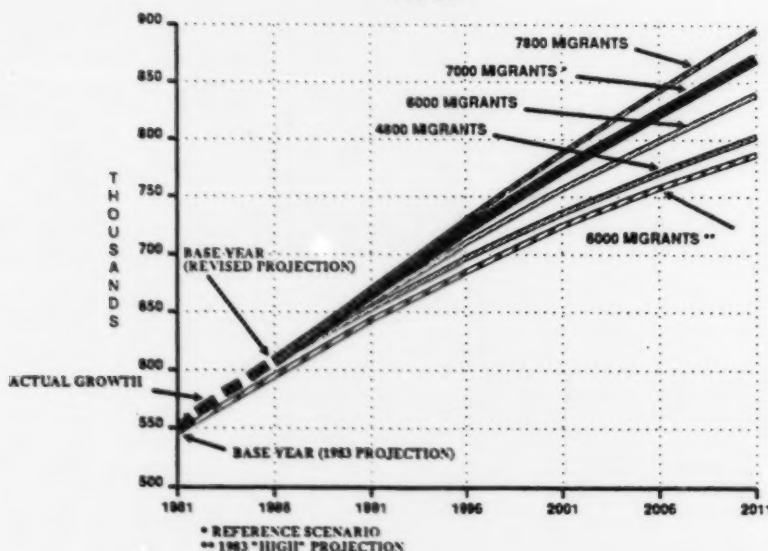
This report analyzes demographic changes that have occurred in Ottawa-Carleton since the 1983 population projections and provides new projections to 2011.

METHODOLOGY AND ASSUMPTIONS

The projections use a cohort survival model to relate the effects of future rates of births, deaths and net migration on the region's population size and age/sex structure. A "Reference" (most likely) scenario and three alternative scenarios have been developed from this method. In brief, the projections incorporate the following assumptions:

- constant fertility at 1985-87 average rates (total fertility rate of 1.44 per woman);
- increased life expectancy based on provincial projections (from males 73.7 years and females 80.2 years in 1986, to 78.5 and 85.7 respectively in 2011);
- net migration to the region at one of four constant annual rates as follows:
 - a. "Reference" - 7,000 persons, corresponding to recent and anticipated developments in inter-provincial and international migration.
 - b. "High" - 7,800 persons, the rate experienced between 1981 and 1986;
 - c. "Medium" - 6,000 persons, the old "high" scenario in the previous 1983 projections; and
 - d. "Low" - 4,800 persons, an average of 1976-1981 (lowest five years of the last quarter century) and 1981-1986 (highest five years).

POPULATION PROJECTIONS : OTTAWA-CARLETON
1986-2011



The four net migration assumptions produce four sets of projections. All projections use the same fertility and mortality assumptions.

POPULATION GROWTH: AN OVERVIEW

Canada - the national average annual rate of population growth has declined from 2.8% between 1951 and 1956 to 0.8% in the 1981-86 period. The Demographic Review (Health and Welfare Canada, 1989) projected that if current trends continue, Canada's population would peak at 31 million in 2026, representing an annual growth rate of 0.6% from the 1986 level at 25 million.

Ontario - The provincial rate of population growth is expected to continue declining. The Ministry of Treasury and Economics projects an annual growth rate of 1.1% between 1986 and 2011. Growth is projected to peak at 1.7% annually between 1986-1991, dropping to 0.7% by 2006-11.

Ottawa-Carleton - The region's growth rate decreased steadily from 2.8% annually in the 1961-66 period to 1.0% during 1976-81. However,

growth rebounded to 2.2% annually between 1981 and 1986.

It is noted that with the exception of 1976-81, the region's growth rate has been consistently higher than national and provincial rates.

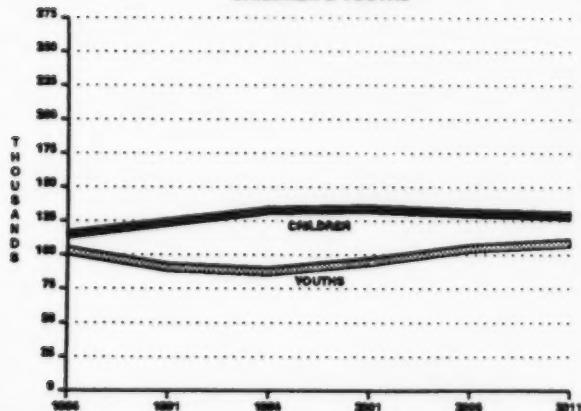
REFERENCE SCENARIO

Ottawa-Carleton is projected to reach a population of 871,000 by 2011, a 43.5% increase over the 1986 population of 606,600. The projection for 2001 is a regional population of 774,000.

The growth rate is projected to average 1.7% annually. Due to aging of the population (and hence more deaths and fewer births), it will decline from an average of 1.9% annually in the 1986-91 period to 1.2% by the 2006-11 period.

The median age of the region's population will increase from 31.2 years in 1986 to 40.3 years in 2011.

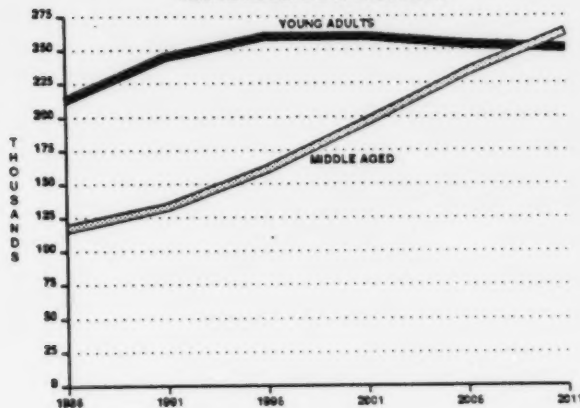
REFERENCE SCENARIO: OTTAWA-CARLETON, 1986-2011
CHILDREN & YOUTHS



Children (0-14) - this group will increase from 115,000 in 1986 to 134,100 by 2001 and then level off to 128,600 by 2011. Their share of the total population will decrease from 19% in 1986 to 15% by 2011.

Youth (15-24) - will decline from 103,000 in 1986 to 87,600 in 1996 and then increase to 108,600 by 2011. Share of total population will drop sharply from 17% in 1986 to 12% in 1996 and then stabilize at this level to 2011.

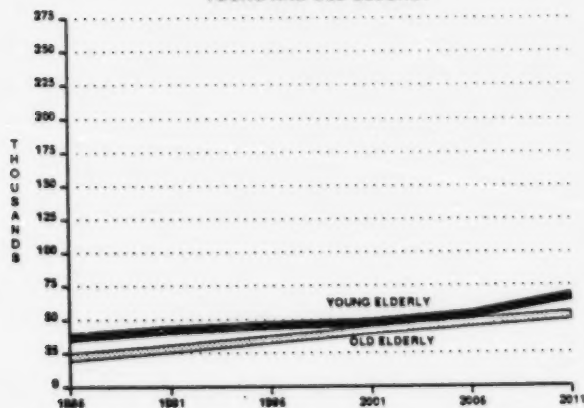
REFERENCE SCENARIO: OTTAWA-CARLETON, 1986-2011
YOUNG ADULTS & MIDDLE AGED



Young Adult (25-44) - will increase from 213,000 in 1986 to 260,000 by 1996 and then decline slightly to 251,000 in 2011. Share of total population will peak at 37% in 1996 and drop to 29% by 2011.

Middle Aged (45-64) - will increase by 125% from 117,000 in 1986 to 263,000 in 2011. Middle aging of the baby boom will result in the largest increase in population share of any age group, from 19% in 1986 to 30% in 2011.

REFERENCE SCENARIO: OTTAWA-CARLETON, 1986-2011
YOUNG AND OLD ELDERLY



Young Elderly (65-74) - will increase from 36,900 in 1986 to 66,600 in 2011. Up to 2006 their share of total population will be stable at between 6.1 to 6.5%, but then increase to 7.7% between 2006 and 2011.

The Older Elderly (75+) - this group will increase from 22,100 in 1986 to 52,400 by 2011. Share of total population will increase steadily from 3.6% in 1986 to 6.0% in 2011. As a proportion of the 65+ group, those over 75 will also increase, from 31% in 1986 to 44% by 2011.

ALTERNATIVE SCENARIOS

"High" (7,800 net migration) - population will reach 896,000 by 2011 with an average growth rate of 1.9% per annum.

"Medium" (6,000 net migration) - population of 840,000 by 2011; average growth rate of 1.5% per annum.

"Low" (4,800 net migration) - population of 803,000 by 2011; average growth rate of 1.3% per annum.

CONCLUSION

To meet the changing needs and requirements generated by the projected growth in population, it is necessary to have flexible planning policies to guide a corresponding supply of developable land, employment opportunities and services. The population projection will provide a base for future planning and decision-making on such policies.

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POPULATION PROJECTIONS: OTTAWA-CARLETON, 1986 - 2011

1.0 INTRODUCTION

Previous population projections for the region, contained in the report "Population Projection: Ottawa-Carleton 1981-2001", were prepared by the Planning Department in 1983. Since then, several demographic changes have occurred resulting in recent growth occurring faster than originally projected. The purpose of this report is to analyze the changes that have taken place and to update the projections for Ottawa-Carleton to 2011.

Organization of the Report

An overview of Ottawa-Carleton's past population growth relative to national and provincial trends is first presented. The second section examines the impact of recent demographic changes on the assumptions employed previously and revises these for use in a series of new projections. The final section discusses the updated regional population projections to 2011.

Methodology: The Cohort Survival Approach

As in previous work, the projections adopt the cohort survival method. The region's population is broken into distinct age/sex "cohorts" (groups) which are then "aged" into the future one year at a time based on projected fertility (birth) and mortality (death) rates. In each year, births are added and deaths are subtracted from the age groups in which they are estimated to occur. Assumptions are also made about migration - the flow of people moving to and from the region each year. The population gained or lost through migration is distributed by age and sex and then added to or subtracted from the appropriate age/sex group.

A computer program developed at the University of Chicago is used to calculate a set of four projections through to 2011. The "reference scenario",

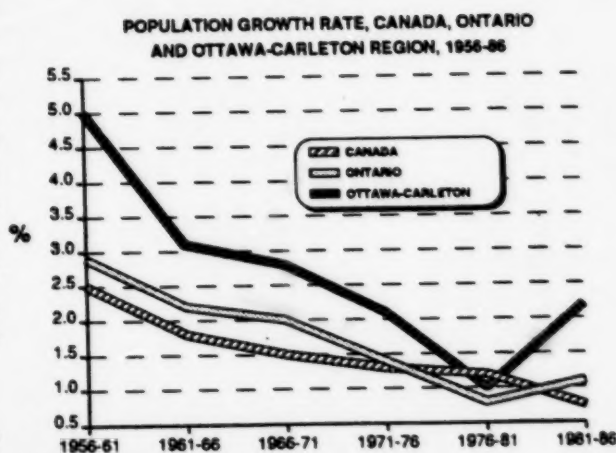
the projection considered to be most likely, is discussed in most detail.

2.0 POPULATION GROWTH - AN OVERVIEW

2.1 Canada

The national average annual rate of population growth has been undergoing a steady decline, from 2.8% between 1951 and 1956 to 0.8% in the 1981-86 period (Figure 1). The Demographic Review (Health and Welfare, 1989) projected that if current trends continue Canada's population would peak at 31 million in 2026, representing an annual growth rate of 0.6% from the 1986 level of 25 million. The projection is based on an assumption of 130,000 immigrants per year (80,000 net migrants), the average of the 1970-86 period. Recent immigration rates have exceeded this; the 1989 level was 189,000.

Figure 1



N.B. Annual average over 5 years.
Source: Ministry of Treasury & Economics.

2.2 Ontario

The rate of population growth for Ontario has also slowed. Growth is expected to continue declining due to an increasing proportion of elderly in the population and the likely continuation of low fertility rates. Between 1981 and 1986, the province experienced an average annual growth rate of 1.1%. This rate was higher than that recorded during 1976-1981, when a net loss of migrants to western Canada occurred, but lower than any five-year period between 1956 and 1976 (Figure 1).

Recent statistics, however, indicate that the situation has changed. Annual growth rates averaged 1.7% between 1986 and 1988 due to migration attracted to the province's healthy economy. In 1988, the province was the intended destination of 88,500 foreign immigrants, 55% of all immigrants to Canada.

Ministry of Treasury and Economics (MTE 1989) projections suggest that the province will continue to attract a large proportion of international immigrants in future years and will sustain a positive level of net interprovincial migration similar to the historic average.

2.3 Ottawa-Carleton

During 1981-1986, Ottawa-Carleton experienced the largest five-year absolute population increase observed in the last 25 years (although not the highest period in percentage growth; see Figure 1). The annual rate of growth in the 1981-86 period averaged about 2.2% - more than twice the national growth rate and nearly double that of the province.

Prior to 1981, the region's growth rate had undergone a steady decline from a high of 2.8% annually in the 1961-1966 period to a low of 1.0% during 1976-1981. Except for 1976-81, the region has consistently exceeded national and provincial growth rates.

3.0 ASSUMPTIONS

The change in population in any given period is a function of three basic variables, namely: births, deaths and migration.

The excess of births over deaths provides what demographers refer to as the level of "natural increase". The rate of natural increase reflects fertility patterns, survival rates and the age structure of the population.

The difference between in and out migration yields the level of net migration into or out of an area. Net migration reflects the attractiveness of an area as a destination for in-migrants, and as a suitable long-term place of residence for the existing population. Migration rates are volatile, being sensitive to economic and social conditions.

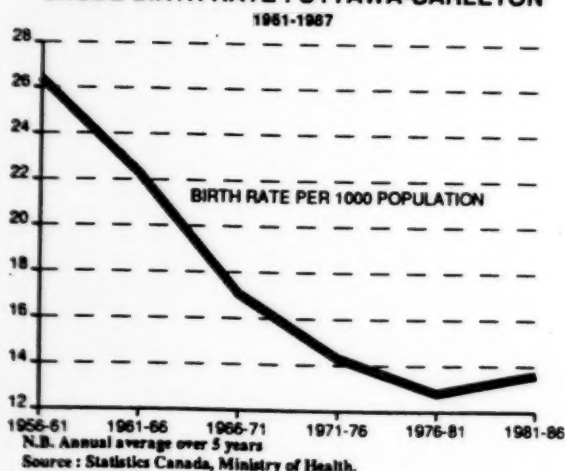
Declining fertility and low net migration levels were the principal causes of the slowdown in growth during 1976-81, while an increase in net migration was the major contributor to increased growth in the 1980's.

3.1 Fertility

The overall crude birth rate in Ottawa-Carleton decreased from about 27 births per 1000 popula-

Figure 2

CRUDE BIRTH RATE : OTTAWA-CARLETON



tion at the peak of the post-war "baby boom" in 1959, to approximately 13 births per 1000 during the "baby bust" period of the late 1960's to early 1980's. The slight rise in the crude birth rate during the 1980's, dubbed the "baby boom echo", resulted from the large numbers of women born during the baby boom having children of their own. By 1986, the crude birth rate in the region stood at 14.1 per 1000 population (Figure 2).

In terms of Total Fertility Rate (T.F.R. = the number of children the average woman will bear in her lifetime), both Canada and Ontario have remained fairly stable since 1977, within a range of 1.63 to 1.7 children per woman. This marks a stabilizing of the long decline that began in the last century (the T.F.R. in 1871 was about 7) and continued until the last decade interrupted only by the baby boom, which peaked in 1959 at a T.F.R. of 3.8.

Forces contributing to this decline include the increased availability of safe and effective contraception, increases in female participation in the labour force, preference for later ages of childbearing and smaller families, lower marriage rates/higher divorce rates, and the numerous economic considerations related to raising children.

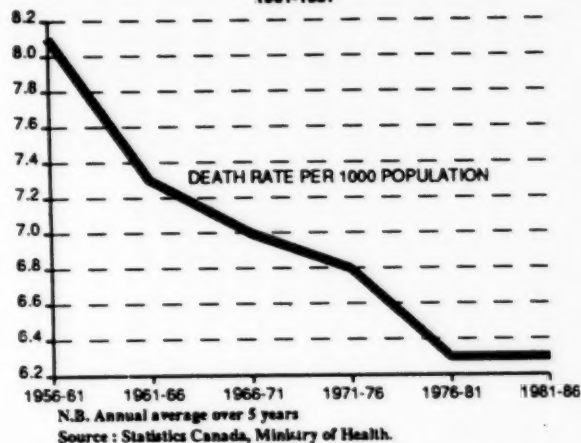
The Ministry of Treasury and Economics (MTE) envisaged no significant changes in fertility rates in its "reference" projection for Ontario and held the T.F.R. constant at 1.68 births per woman throughout the projection period. Constant fertility, at a T.F.R. of 1.7, was also assumed by the Demographic Review in projecting Canada's population.

Fertility in Ottawa-Carleton (average T.F.R. of 1.44 for the three years 1985-87) has historically been lower than national and provincial levels. For updating the regional projections, the above-noted constant fertility assumption was maintained, but using 1985-87 Ottawa-Carleton rates.

3.2 Mortality

The crude death rate in the region decreased from 8.0 deaths per 1000 persons in 1960 to 6.34 in 1981. Since 1984, however, the crude death rate has increased marginally due to general aging of the population (Figure 3).

Figure 3
CRUDE DEATH RATE : OTTAWA-CARLETON
1961-1987



There is general consensus that life expectancy will continue to increase in all age groups due to improvements in medical care and greater awareness of healthier lifestyles. According to MTE projections, the province's life expectancy at birth, 79.1 for females and 73.5 for males in 1986, is expected to reach 84.5 and 78.3, respectively, by 2011.

Life expectancy in Ottawa-Carleton has been fractionally higher than that of the province, standing at 80.2 for females and 73.7 for males in 1986. It is assumed that mortality trends in the region will reflect those of the province. On this basis, life expectancy is projected to rise to 85.7 for females and 78.5 for males by 2011.

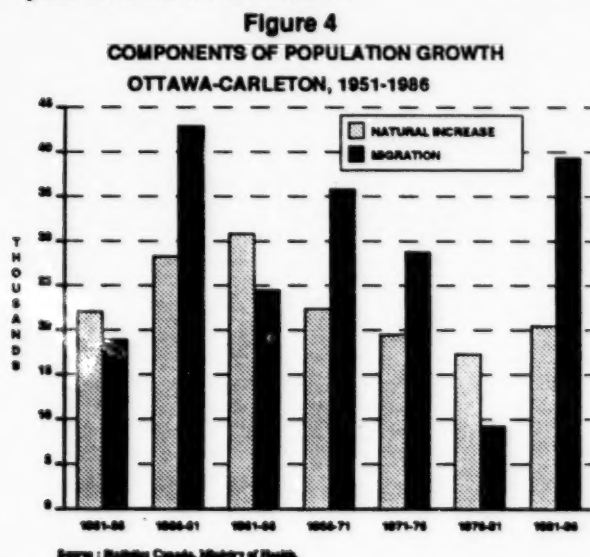
3.3 Net Migration

Net migration is the balance of people moving to and moving from an area. It is complex and often volatile, comprising intraprovincial, interprovincial and international movements of people, and

hence much more difficult to project than births or deaths. Migration is influenced by many factors, including job opportunities, government policy and other social, cultural and political factors.

Since natural increase (the change from births and deaths) is expected to remain fairly stable through the projection period, the key variable in population change is the level of net migration.

As shown in Figure 4, net migration to Ottawa-Carleton has fluctuated considerably since 1950. Apart from 1969-1970 and 1979, the region has maintained a net gain in migration in almost every year of the last four decades.



During the 1976-1981 period, the region experienced the lowest level of net in-migration of any five-year period since the early 1950s, averaging about 1,860 annually. This was due to net out-migration from Ontario to other provinces as a result of the economic boom in the west. It was also a period of out-migration from the region to other areas of Ontario.

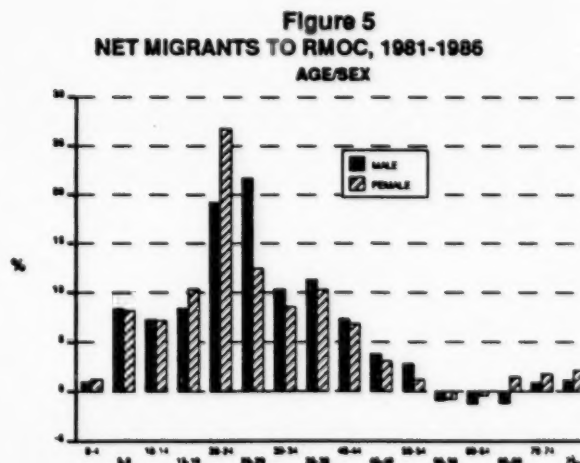
In the 1980's, net migration to Ottawa-Carleton increased dramatically, despite a continuous out-flow of intraprovincial migrants. Between 1981

and 1986, average annual net in-migration was 7,820. This high level was boosted by the strong economic performance of the region relative to the rest of the country during the recession of the early 1980s.

In the light of past experience, the Planning Department has examined four migration assumptions. These are:

- a) "High" - 7,800 annual net migrants, corresponding to the region's experience from 1981 to 1986;
- b) "Medium" - 6,000 net migrants, the old "high" migration scenario in the Official Plan projections and only slightly higher than the average for the 25 year period 1961-1986 of 5,600 annually; and
- c) "Low" - 4,800 net migrants, an average of 1976-1981 (lowest five years) and 1981-1986 (highest five years)
- d) a "Reference Scenario" using 7,000 migrants was developed based on migration trends of the 1980s and assumed higher levels of immigration nationally and provincially.

It is noted that in all of the migration assumptions, the age/sex distribution of net migrants during 1981-86 was adopted. As shown in Figure 5, this



distribution shows a high concentration of people in their 20's, moderate levels of 5 to 19 and 30 to 39 and few under 5 or over 45. It is also interesting to observe net out-migration around retirement age, which reverses itself with increasing age.

These assumptions together with the fertility and mortality assumptions described above were then tested individually to provide a range of population estimates for 2011.

A summary of the assumptions adopted for the updated projections is presented in Figure 6.

4.0 POPULATION PROJECTION, Ottawa-Carleton, 1986-2011

4.1 The Reference Scenario

This is the "most likely" population projection for Ottawa-Carleton. It is based on constant fertility, a moderate decrease in mortality from 1986 levels, and 7000 annual net migrants. The results detailing the projected population by age group for five year intervals through to 2011 are presented in Figure 7.

Growth in the period 1986-2011 is expected to be slower than during 1961-1986. In the previous

quarter-century, the region grew by about 70%. The projected increase over the next quarter century (1986-2011) represents a 43.5% increase.

The projected growth rate of 1.7% annually is similar to that observed between 1976 and 1986. Growth will be strongest prior to the turn of the century, particularly in the late 1980s and early 1990s with annual rates of about 1.9%. By the end of the period (2006-11), annual rates will have fallen to 1.2% due aging of the population (fewer births, more deaths).

Comparison to 1983 Official Plan Projection

The 1983 "high" projection has underestimated recent growth. The 1986 Census indicated a population 12,000 higher than projected; actual growth during the 1981-86 period exceeded projections by 30%.

The reference projection of 871,000 in 2011 is 10.7% higher than the 1983 figure of 787,000. A comparison of the 1983 results to the four revised scenarios is presented in Figures 8 and 9.

Age Structure

The region's population will age considerably by 2011, as shown in the population pyramids for

FIGURE 6

SUMMARY OF ASSUMPTIONS

ASSUMPTION	1983 PROJECTION	REFERENCE SCENARIO	ALTERNATIVE SCENARIOS		
			"LOW"	"MEDIUM"	"HIGH"
1. BASE YEAR	1981	1986			
2. END YEAR	2001	2011			
3. FERTILITY - TOTAL FERTILITY RATE (T.F.R.)	Actual 1979 T.F.R. of 1375.5 held constant to 2001	Average 1985-87 T.F.R. of 1440.0 held constant to 2011			
4. MORTALITY	Small increase in longevity	Moderate increase in longevity			
5. MIGRATION (AVERAGE ANNUAL NET IN-MIGRATION)	6000	7000, approx. midway between the old "HIGH" scenario of the 1983 projection of 6000 and the 1981-86 experience of 7800	4800, the average of 1976-81 (lowest 5 years) and 1981-86 (highest 5 years)	6000, employed in the 1983 projection	7800, the level experienced during 1981-86

FIGURE 7

"REFERENCE" SCENARIO - % SHARE OF TOTAL POPULATION
BY AGE GROUP, OTTAWA-CARLETON 1986-2011

AGE GROUP	1986 (BASE YEAR)	1991	1996	2001	2006	2011
0-14	18.9	18.7	18.3	17.3	15.9	14.8
15-24	17.0	13.7	12.1	12.3	12.7	12.5
25-44	35.1	36.9	36.0	33.5	30.8	28.8
45-64	19.3	20.0	22.3	25.4	28.3	30.3
65-74	6.1	6.4	6.5	6.2	6.5	7.7
75 +	3.6	4.2	4.8	5.4	5.8	6.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

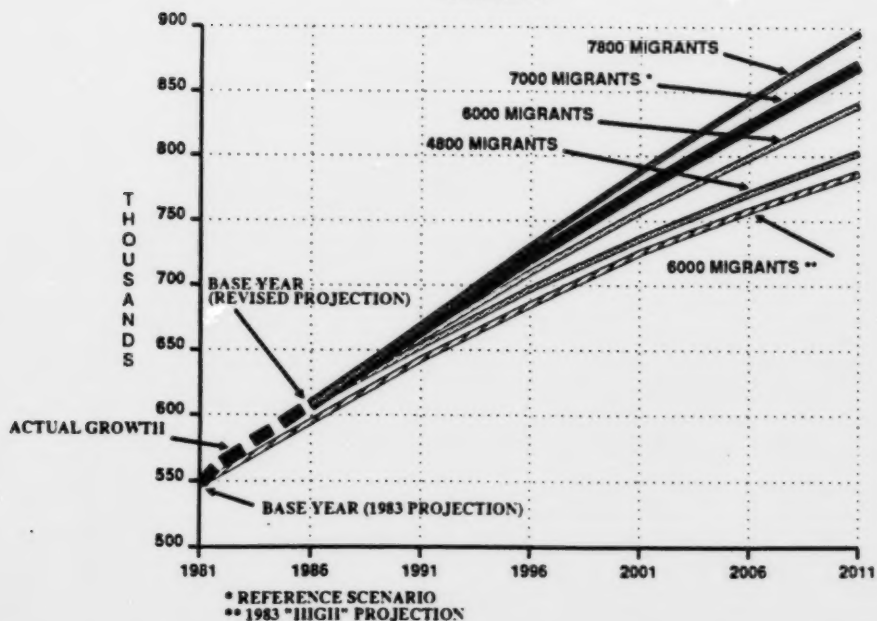
FIGURE 8

"REFERENCE" AND ALTERNATIVE SCENARIOS,
POPULATION PROJECTION, OTTAWA-CARLETON 1986-2011

ASSUMPTIONS	1986 (BASE YEAR)	1991	1996	2001	2006	2011
6000 MIGRANTS (1983 PROJECTION)	595000	643000	685000	725000*	758000*	787000*
4800 MIGRANTS ("LOW" SCENARIO)	607000	653000	697000	736000	771000	803000
6000 MIGRANTS ("MEDIUM" SCENARIO)	607000	659000	710000	757000	799000	840000
7000 MIGRANTS ("REFERENCE" SCENARIO)	607000	665000	721000	774000	823000	871000
7800 MIGRANTS ("HIGH" SCENARIO)	607000	669000	730000	788000	843000	896000

NOTE 1. * Revised 1984
2. Figures rounded to the nearest 1000

Figure 9
POPULATION PROJECTIONS : OTTAWA-CARLETON
1986-2011



1986-2011 (Figures 10 to 15). The median age of the population in 2011 will be 40.3 years compared to 31.2 in 1986. However, the general phenomenon of population aging, already well documented in many studies, hides many changes projected to occur across virtually all major age categories. A more detailed look at changes in six broad age groups of the reference scenario provides a clearer illustration of the changes that can be anticipated (Figures 16 and 17).

a) Children (0-14)

As shown on the chart, the number of children will increase to a high of 134,100 by 2001 and then level off. However, the share of children in the total population will decline from 19% in 1986 to 15% in 2011.

b) Youth (15-24)

The youth population is projected to continue to decline until 1996, a reflection of the movement

Figure 10

REFERENCE SCENARIO: OTTAWA-CARLETON 1986
POPULATION BY SEX AND AGE

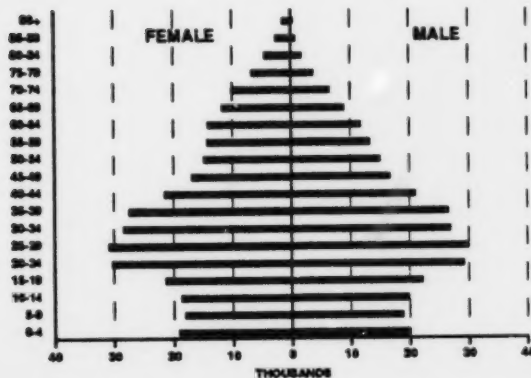


Figure 11

REFERENCE SCENARIO: OTTAWA-CARLETON 1991
POPULATION BY SEX AND AGE

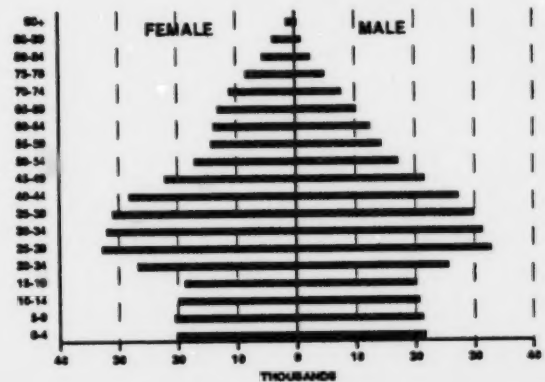


Figure 12

REFERENCE SCENARIO: OTTAWA-CARLETON 1996
POPULATION BY SEX AND AGE

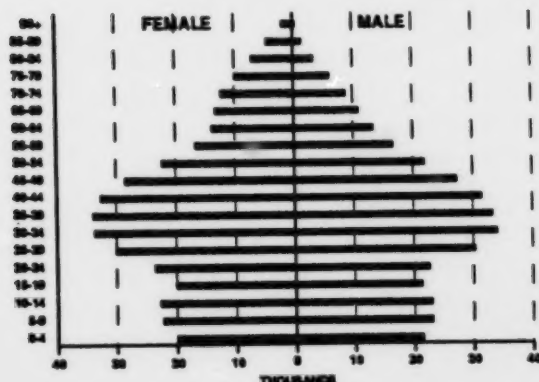


Figure 13

REFERENCE SCENARIO: OTTAWA-CARLETON 2001
POPULATION BY SEX AND AGE

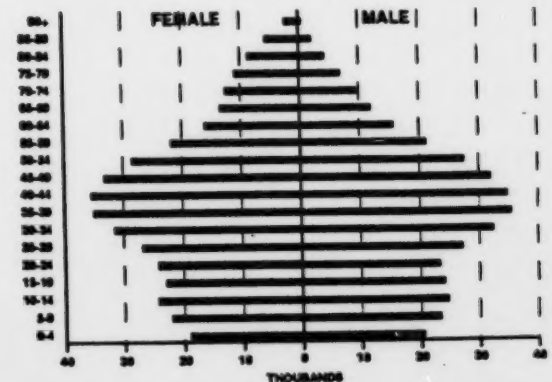


Figure 14

REFERENCE SCENARIO: OTTAWA-CARLETON 2006

POPULATION BY SEX AND AGE

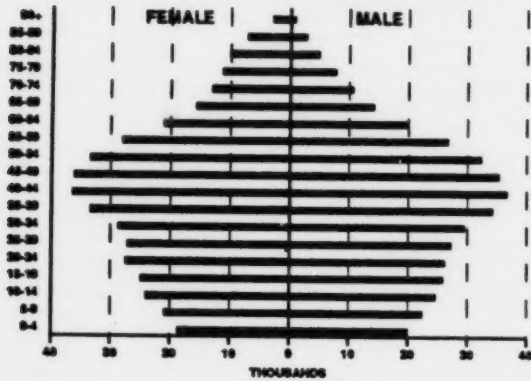


Figure 15

REFERENCE SCENARIO: OTTAWA-CARLETON 2011

POPULATION BY SEX AND AGE

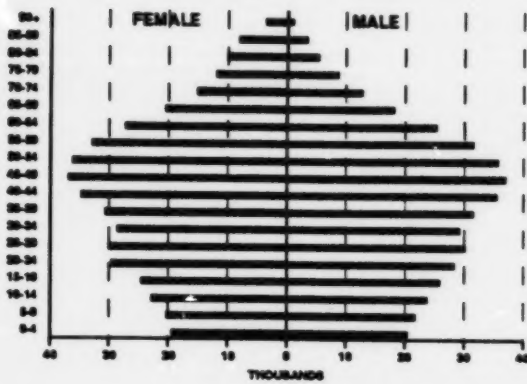


Figure 16

REFERENCE SCENARIO : POPULATION PROJECTION
BY AGE GROUP, 1971-2011

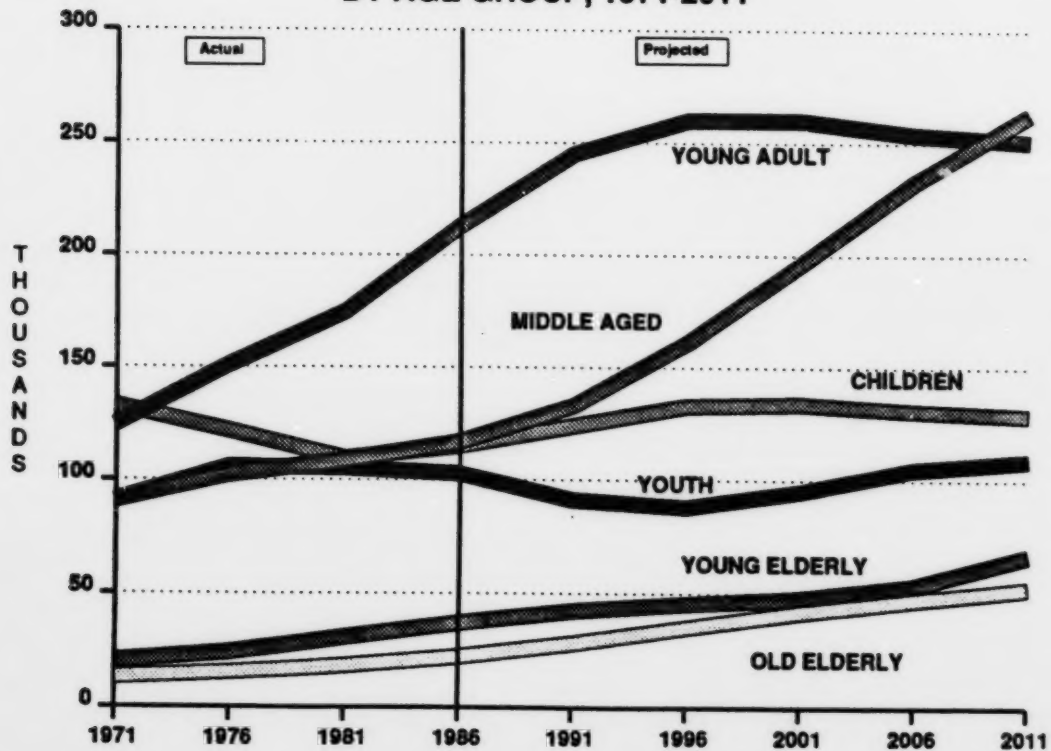
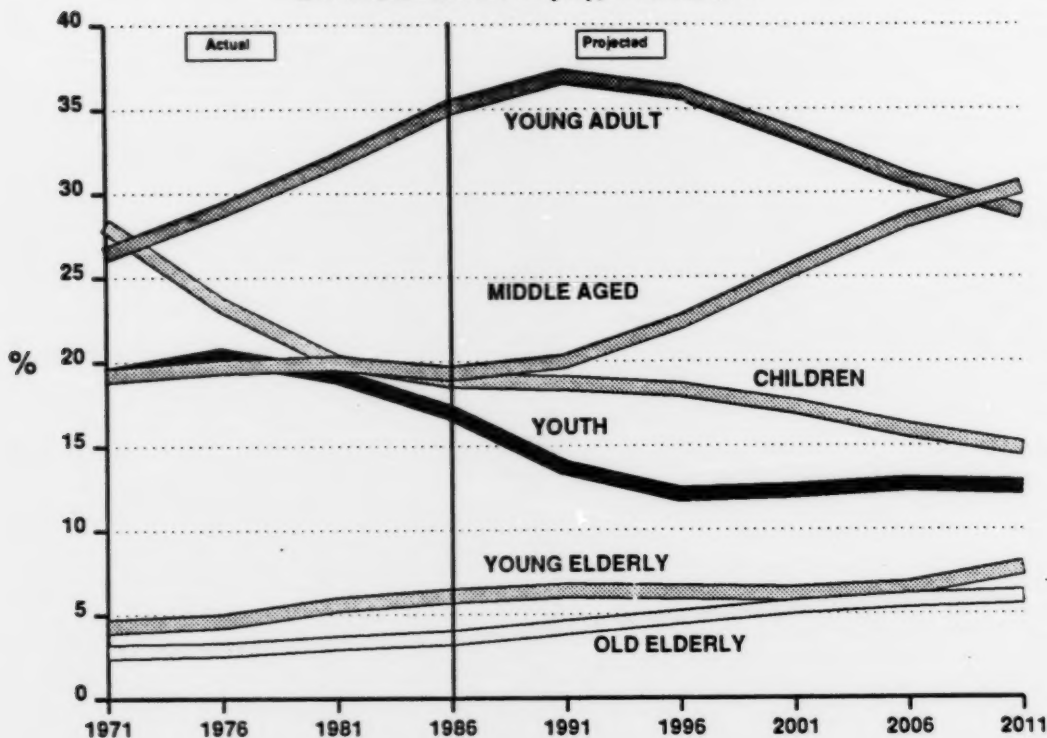


Figure 17
REFERENCE SCENARIO : POPULATION PROJECTION
BY AGE GROUP (%), 1971-2011



through the age pyramid of the "baby bust" period of low birth rates in the 1970s. By 2006, however, this wave will have passed out of the youth cohort and numbers will grow to surpass 1986 levels.

As a share of the total population, this group will drop sharply from 17% in 1986 to 12% in 1996 and then stabilize at 12% through the remainder of the projection period.

c) Young Adult (25-44)

Young adults will increase to about 260,000 in 1996 but then decline as the post-war baby boom advances into middle age. This cohort's share of the total population will peak at 37% in 1996, then decline to 29% in 2011.

d) Middle Aged (45-64)

This group will increase by 125% to about 263,000 in 2011 as the baby boom enters middle age. The population share of the middle aged will increase from 19% in 1986 to 30% in 2011.

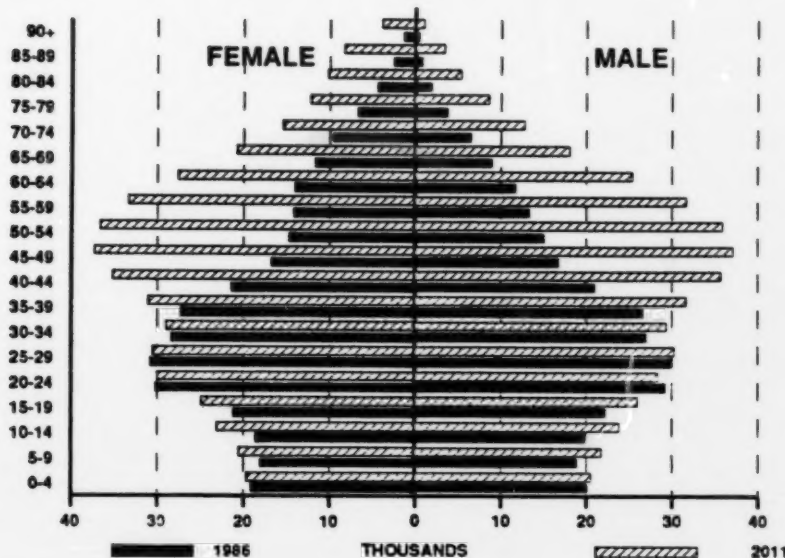
e) Young Elderly (65-74)

The number of "young" elderly will almost double by 2011. Their share of population will not increase significantly until 2006. After 2011, this group will experience unprecedented growth as the baby boom enters the 65+ age group.

f) Older Elderly (75+)

This group will multiply by a factor of 2.4, from 22,100 in 1986 to 52,400 by 2011. Their share of total population will rise steadily from 3.6% to 6%.

Figure 18
POPULATION BY SEX AND AGE
1986 VS. 2011



Projected changes in age structure are shown in an alternate form in Figure 18, combining the population pyramids for 1986 and 2011. The scale of change over the 25 year period can be summarized in two simple operations. First, there is almost no change in any age group below 35. Second, above the age of 45, virtually all age groups double in size.

4.2 The Alternative Scenarios

Three alternative migration assumptions were tested, the results of which are presented below. Detailed results can be consulted in the Appendix (Tables A-7 to A-9).

"Low" (4,800) Net Migration Scenario

a) The population level will reach 736,000 by 2001 and 803,000 by 2011, 1.5% and 2.0% respectively higher than that projected in 1983.

b) The overall growth rate for this scenario is 1.3% per annum. The overall growth rate is only 0.2% higher than the average annual rate of 1.1% forecasted by MTE for the province. The region had much higher rates than the province in the past.

"Medium" (6,000) Net Migration Scenario

a) The population under this scenario will reach 757,000 by 2001 and 840,000 by 2011. It is 2.2% and 3.7% lower than the level projected in the reference scenario for 2001 and 2011 respectively.

b) The overall average annual growth rate is expected to reach 1.5%. It is approximately 36% higher than the 1.1% forecasted for the province.

"High" (7800) Net Migration Scenario

a) Population under this scenario is 788,000 for 2001 and 896,000 by 2011. It is 1.8% and 2.9% higher than the population projected in the reference scenario for 2001 and 2011 respectively.

b) The overall average annual growth rate under this scenario is 1.9%, about 73% higher than that forecasted for the province.

The past relationship between the regional and provincial growth rates suggests that the population growth rates under the "medium" and "high" net migration scenarios are more compatible with historic trends than the "low" scenario. Coupled with recent developments in net migration, it is

generally felt that future population size will likely be within the range of the "medium" and "high" scenarios. It is also recognized that the projections are most accurate during the early part of the projection period. There is greater uncertainty associated with the forecasts as the number of years from the base year (1986) increases.

5.0 CONCLUSION

The forecasted 2011 level of population in the reference scenario represents a 43% increase from the 1986 level. To accompany this magnitude of population increase, a corresponding supply of developable land, employment opportunities and services are necessary. This may raise a number of issues, including:

a) an increasingly immigrant population which will affect demand for education, health, social and cultural services;

b) an aging population which will affect the growth of the labour force; and

c) the changing age distribution which will affect demand for a wide range of services. For example, special housing and other services for the elderly may be required as the population ages, the declining number of children will impact upon educational services, and the rapid growth in the adult group will increase demand for particular recreational, health, and social services, as well as increase demand for transportation and other "hard" services required to service housing and employment areas.

It is therefore essential that flexible planning policies should be developed to accommodate these changing needs and requirements. The population projections will provide a base for future planning and decision-making on such policies.

APPENDIX

**TABLE A-1: "REFERENCE" SCENARIO POPULATION PROJECTION
(7000 NET MIGRANTS) BY 5-YEAR AGE GROUP, 1986 - 2011**

AGE GROUP	1986	1991	1996	2001	2006	2011
0-4	39245	41982	41554	39605	38671	39944
5-9	37020	41834	45434	45504	43410	41996
10-14	38541	40637	45664	48991	48766	46641
15-19	43526	39026	41408	47222	50908	50523
20-24	59506	52314	46197	47634	53754	58041
25-29	60975	65622	60476	54110	54507	60398
30-34	55430	63400	67756	64113	58252	58002
35-39	54081	60934	67308	70670	67669	62359
40-44	42455	55455	64155	70379	73150	70460
45-49	33585	43722	55905	65260	71555	74046
50-54	29865	34363	44263	56105	65768	72142
55-59	27555	28641	33348	43069	54760	64638
60-64	25919	26371	27283	31831	41177	52659
65-69	20721	23308	24263	25425	29829	38679
70-74	16166	18935	21120	22234	23677	27958
75-79	10530	13354	15989	17890	18999	20721
80-84	6384	8135	10485	13008	14710	15373
85-89	3401	4821	6126	7818	9880	11547
90+	1749	1758	2322	2960	3765	4749
TOTAL	606654	664612	721056	773828	823207	870876

TABLE A-2: NATURAL INCREASE, OTTAWA-CARLETON 1957-1987

YEAR	TOTAL BIRTHS	CRUDE BIRTH RATE (/1000)	TOTAL DEATHS	CRUDE DEATH RATE (/1000)	NATURAL INCREASE
1957	7858	26.7	2529	8.6	5329
1958	8248	26.9	2550	8.3	5698
1959	8608	26.5	2673	8.2	5935
1960	8924	26.4	2665	7.9	6259
1961	8916	25.3	2730	7.7	6186
AVERAGE	8511	26.4	2629	8.1	5881
1962	9203	25.2	2667	7.3	6536
1963	9321	24.6	2809	7.4	6512
1964	9080	23.3	2795	7.2	6285
1965	8174	20.4	2867	7.2	5307
1966	7457	18.1	2957	7.2	4500
AVERAGE	8647	22.3	2819	7.3	5828
1967	7407	17.7	3001	7.2	4406
1968	7389	17.0	2979	6.9	4410
1969	7526	16.9	3034	6.8	4492
1970	7732	17.3	3155	7.1	4577
1971	7450	16.7	3094	6.9	4356
AVERAGE	7501	17.1	3053	7.0	4448
1972	7192	15.4	3127	6.7	4065
1973	7017	14.7	3352	7.0	3665
1974	7092	14.5	3422	7.0	3670
1975	7130	14.1	3381	6.7	3749
1976	6705	12.9	3477	6.7	3228
AVERAGE	7027	14.3	3352	6.8	3675
1977	6757	12.7	3306	6.2	3451
1978	6770	12.7	3432	6.4	3338
1979	6989	12.9	3352	6.2	3637
1980	7128	13.0	3447	6.3	3681
1981	7123	12.9	3468	6.3	3655
AVERAGE	6953	12.8	3401	6.3	3552
1982	7382	13.1	3563	6.3	3819
1983	7805	13.6	3717	6.5	4088
1984	7996	13.7	3647	6.2	4349
1985	8235	13.7	3717	6.2	4518
1986	8558	14.0	3858	6.3	4700
AVERAGE	7995	13.6	3700	6.3	4295
1987	8342	13.5	3965	6.4	4377

SOURCE: Statistics Canada, Ministry of Health

TABLE A-3: COMPONENTS OF POPULATION GROWTH, OTTAWA-CARLETON 1951-1986

PERIOD	POPULATION GROWTH	ANNUAL AVERAGE	COMPONENTS OF POPULATION GROWTH					
			NATURAL INCREASE			NET MIGRATION		
			#	ANNUAL AVERAGE	%	#	ANNUAL AVERAGE	%
1951-1956	40948	8190	22048	4410	53.8	18900	3780	46.2
1956-1961	71164	14233	28252	5650	39.7	42912	8582	60.3
1961-1966	55282	11056	30826	6165	55.8	24456	4891	44.2
1966-1971	58239	11648	22385	4477	38.4	35854	7171	61.6
1971-1976	48299	9660	19505	3901	40.4	28794	5759	59.6
1976-1981	26620	5324	17335	3467	65.1	9285	1857	34.9
1981-1986	59820	11964	20735	4147	34.7	39085	7817	65.3

SOURCE: Statistics Canada, Ministry of Health

TABLE A-4: NET MIGRATION, BY SEX AND AGE GROUP 1981-1986

1981-86 MIGRANTS	MALE		FEMALE		TOTAL	
	#	%	#	%	#	%
0-4	180	0.93	234	1.18	414	1.06
5-9	1618	8.39	1623	8.20	3241	8.29
10-14	1400	7.26	1416	7.15	2816	7.20
sub-total	3198	16.58	3273	16.53	6471	16.56
15-19	1616	8.38	2046	10.34	3662	9.37
20-24	3701	19.19	5293	26.74	8994	23.01
sub-total	5317	27.56	7339	37.07	12656	32.38
25-29	4186	21.70	2461	12.43	6647	17.01
30-34	1986	10.30	1686	8.52	3672	9.39
35-39	2176	11.28	2031	10.26	4207	10.76
40-44	1414	7.33	1360	6.87	2774	7.10
sub-total	9762	50.61	7538	38.08	17300	44.26
45-49	726	3.76	612	3.09	1338	3.42
50-54	538	2.79	238	1.20	776	1.99
55-59	-174	-0.90	-152	-0.77	-326	-0.83
60-64	-235	-1.22	-90	-0.45	-325	-0.83
sub-total	855	4.43	608	3.07	1463	3.74
65-69	-225	-1.17	288	1.45	63	0.16
70-74	170	0.88	338	1.71	508	1.30
sub-total	-55	-0.29	626	3.16	571	1.46
75-79	116	0.60	205	1.04	321	0.82
80-84	53	0.27	-474	-2.39	-421	-1.08
85 +	43	0.22	681	3.44	724	1.85
sub-total	212	1.10	412	2.08	624	1.60
TOTAL	19289	100.00	19796	100.00	39085	100.00

SOURCE: Statistics Canada, Ministry of Health

TABLE A-5: "REFERENCE" AND ALTERNATIVE SCENARIOS, ANNUAL AVERAGE GROWTH RATE (%), OTTAWA-CARLETON 1986-2011

ASSUMPTION	1986-1991	1991-1996	1996-2001	2001-2006	2006-2011	TOTAL GROWTH RATE	ANNUAL AVERAGE GROWTH RATE	
							1986-2001	1986-2011
6000 MIGRANTS (1983 PROJECTION)	1.60	1.31	1.17	0.91	0.77	32.27	1.46	1.29
4800 MIGRANTS ("LOW" SCENARIO)	1.53	1.34	1.10	0.95	0.85	32.40	1.42	1.30
6000 MIGRANTS ("MEDIUM" SCENARIO)	1.74	1.54	1.31	1.13	1.00	38.50	1.65	1.54
7000 MIGRANTS ("REFERENCE" SCENARIO)	1.91	1.70	1.50	1.27	1.16	43.49	1.84	1.70
7800 MIGRANTS ("HIGH" SCENARIO)	2.10	1.83	1.59	1.39	1.26	47.70	1.99	1.90

NOTE: Annual average uncompounded growth rate

TABLE A-6: "REFERENCE" SCENARIO - POPULATION PROJECTION BY AGE GROUP,
OTTAWA-CARLETON 1986-2011

AGE GROUP	1986 (BASE YEAR)	1991		1996		2001		2006		2011		TOTAL GROWTH RATE	AAGR* 1986- 2011
		#	AAGR* 1986-91	#	AAGR* 1991-96	#	AAGR* 1996-01	#	AAGR* 2001-06	#	AAGR* 2006-11		
0-14	115000	124000	1.70	133000	1.30	134000	0.20	131000	-0.50	129000	-0.30	12.00	0.48
15-24	103000	91000	-2.30	88000	-0.80	95000	1.70	105000	2.10	109000	10.70	5.40	0.21
25-44	213000	245000	3.00	260000	1.16	260000	-0.03	254000	-0.44	251000	-0.19	18.00	0.72
45-64	117000	133000	2.77	161000	4.16	196000	4.41	233000	3.77	263000	2.59	125.30	5.01
65-74	36887	42243	2.90	45383	1.50	47659	1.00	53506	2.50	66637	4.90	80.70	3.23
75 +	22064	28068	5.40	34922	4.90	41676	3.90	47354	2.70	52390	2.10	137.40	5.50

* Annual Average Growth Rate (uncompounded)

NOTE: Figures rounded to the nearest 1000 for population under 65

TABLE A-7: "LOW" (4800 NET MIGRANTS) SCENARIO POPULATION PROJECTION
BY AGE GROUP, OTTAWA-CARLETON 1986-2011

AGE GROUP	1986 (BASE YEAR)		1991		1996		2001		2006		2011	
	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP
0-14	115000	18.9	122000	18.7	128000	18.4	127000	17.3	120000	15.6	115000	14.3
15-24	103000	17.0	88000	13.5	83000	11.9	89000	12.1	97000	12.6	99000	12.3
25-44	213000	35.1	240000	36.8	247000	35.5	240000	32.6	229000	29.7	222000	27.6
45-64	117000	19.3	132000	20.2	158000	22.7	191000	26.0	224000	29.1	249000	31.0
65 +	59000	9.7	70000	10.7	80000	11.5	89000	12.1	100000	13.0	118000	14.7
TOTAL	607000	100.0	652000	100.0	696000	100.0	736000	100.0	770000	100.0	803000	100.0

NOTE: Figures rounded to the nearest 1000

TABLE A-8: "MEDIUM" (6000 NET MIGRANTS) SCENARIO POPULATION PROJECTION
BY AGE GROUP, OTTAWA-CARLETON 1986-2011

AGE GROUP	1986 (BASE YEAR)		1991		1996		2001		2006		2011	
	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP
0-14	115000	18.9	123000	18.7	131000	18.4	131000	17.3	126000	15.8	123000	14.6
15-24	103000	17.0	90000	13.7	86000	12.1	92000	12.2	101000	12.6	104000	12.4
25-44	213000	35.1	243000	36.9	254000	35.7	251000	33.2	242000	30.3	238000	28.3
45-64	117000	19.3	133000	20.2	160000	22.5	194000	25.6	229000	28.7	257000	30.6
65 +	59000	9.7	70000	10.6	80000	11.3	89000	11.8	101000	12.6	118000	14.0
TOTAL	607000	100.0	659000	100.0	711000	100.0	757000	100.0	799000	100.0	840000	100.0

NOTE: Figures rounded to the nearest 1000

**TABLE A-9: "HIGH" (7800 NET MIGRANTS) SCENARIO POPULATION PROJECTION
BY AGE GROUP, OTTAWA-CARLETON 1986-2011**

AGE GROUP	1986 (BASE YEAR)		1991		1996		2001		2006		2011	
	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP	#	% OF TOTAL POP
0-14	115000	18.9	125000	18.7	134000	18.4	137000	17.4	135000	16.0	133000	14.8
15-24	103000	17.0	92000	13.8	89000	12.2	97000	12.3	107000	12.7	112000	12.5
25-44	213000	35.1	247000	37.0	264000	36.2	266000	33.8	263000	31.2	262000	29.2
45-64	117000	19.3	133000	19.9	162000	22.2	198000	25.1	237000	28.1	269000	30.0
65 +	59000	9.7	70000	10.5	80000	11.0	90000	11.4	101000	12.0	120000	13.4
TOTAL	607000	100.0	667000	100.0	729000	100.0	788000	100.0	843000	100.0	896000	100.0

NOTE: Figures rounded to the nearest 1000